

cerebral pneumography. Adhesions, which follow meningitis and occlude the cisternæ, cause the vast majority of cases of communicating hydrocephalus, although in two cases cited the condition seemed to depend upon a congenital failure of the cisternæ or of its branches to develop. Brain tumors may also be a cause.

**Experimental Inoculation of Human Throats with Avirulent Diphtheria Bacilli.**—MOSS, GUTHRIE and MARSHALL (*Johns Hopkins Hosp. Bull.*, 1921, xxxii, 37). The authors summarize the results of their extensive investigations as follows: "(1) The carrier state was easily produced in human beings by inoculation of the throat with avirulent diphtheria bacilli. (2) When thus produced the carrier state lasted for a long time, two of the carriers still harboring avirulent diphtheria bacilli after fifteen months. (3) The previous administration of diphtheria antitoxin subcutaneously did not prevent the lodgment and growth of the organisms. (4) Inoculation of avirulent diphtheria bacilli into the throats of human beings did not produce: (a) clinical diphtheria; (b) any subjective symptoms; (c) any objective change in the appearance of the throat. (5) The results of the guinea-pig test for virulence were confirmed when thus tested with human beings. (6) No cases of clinical diphtheria developed among the associates of these artificially produced "healthy carriers" of avirulent diphtheria bacilli. (7) When isolated in pure culture after prolonged sojourn in the human throat the bacilli were not altered in morphology or in their staining or cultural characteristics. (8) The bacilli showed no tendency to become virulent as a result of this type of animal passage, either in the carriers who had received diphtheria antitoxin or in those who had not. (9) Spraying the nose with gentian violet in a strength which could be tolerated seemed to be without effect in eradicating avirulent diphtheria bacilli." The following are the conclusions of the investigators: "(1) Avirulent diphtheria bacilli retain their characteristics despite long residence in the human throat or transfer from one human being to another. (2) Avirulent diphtheria bacilli are devoid of pathogenic importance for man. (3) The carrier of avirulent diphtheria does not constitute a menace to the health of the community."

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## SURGERY

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UNDER THE CHARGE OF

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**Subphrenic Abscess.**—ULLMAN and LEVY (*Surg., Gynec. and Obst.*, 1920, xxxi, 594) review the literature on this subject and report a case cured by operation. Of 890 cases collected by Piquand in 1908, 28 per cent. followed gastric and duodenal ulcers and 21 per cent.

appendicitis; 15 per cent. were associated with the liver and biliary passages; 6 per cent. with intestinal diseases; and the remaining 3 per cent. with various conditions. Of Barnard's series of 76 cases collected from the London Hospital, gastric and duodenal ulcers were responsible for one-third of the cases (34 per cent.), appendicitis for one-sixth (15 per cent.), tropical and hydatid diseases of the liver for one-sixth (17 per cent.); the remaining were distributed among rare conditions, such as cancer of the pancreas, pyosalpinx, splenic infarct, gall-stones, etc. Since 1908, appendicitis as the cause of subphrenic abscess appears to assume the principal etiological role. This view was vigorously suggested by Heffinger in 1912. Subphrenic abscesses are apparently not so common today as formerly. The improvement in diagnostic skill, and the almost universal employment of the roentgen ray for thoracic and abdominal diagnosis, together with the realization of what clinical diseases may be complicated by a subphrenic abscess, have apparently rendered this condition an uncommon occurrence today. In the present paper they reported a case of a patient who developed a subphrenic abscess while under care, showing that such a condition may occur even under hospital supervision; secondly, the case is worthy of record in view of the interesting roentgenological findings of an abscess with gas formation. Moore has pointed out that roentgenological illustrations of subphrenic abscesses containing gas are very rare.

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**Two Hundred and Fifty Operations on the Gall-bladder and Ducts.**—McGUIRE (*Surg., Gynec. and Obst.*, 1920, xxxi, 617), says all gall-stones have their origin in a primary cholecystitis. Typhoid bacilli are present in only 7 to 10 per cent. of gall-stones. The mode of transmission of the primary infection is not positively determined. He is of the opinion that it is almost always carried by the blood-stream, and rarely, if ever, by direct extension. It is probably more frequently associated with a primary lesion elsewhere in the abdomen. A diseased appendix is very frequently present when stones are found in the gall-bladder. It is probably the cause of the primary cholecystitis in more instances than is commonly believed. Gall-stones are rare in young people. In less than 15 per cent. was the patient under thirty years, while over 60 per cent. occur between the ages of thirty and fifty years. Jaundice has received too much emphasis as a diagnostic symptom. Probably when the primary cholecystitis is present, a goodly proportion have a mild jaundice, but it is slight and usually forgotten. Stones in the gall-bladder or the cystic duct produce jaundice only by pressure on the common duct or by associated cholecystitis. Attacks of pain in right upper quadrant are most frequent symptoms of stones. Cholecystectomy is the operation of choice where there are stones in the gall-bladder or cystic duct. It is probably the operation of choice where stones are in the common duct, if one is positive all stones have been removed, because stones in the common duct are so often associated with an old contracted gall-bladder. The mortality from cholecystectomy is now sufficiently low so that decision for or against the operation should be judged largely by the percentage of ultimate cures. In cancer of pancreas, the mortality is so high that operative procedure is prohibitive. If operation be done, anastomosis between gall-bladder and stomach is the one of choice.